

Kevin Romero Peces-Barba
kromero8@ucsc.edu
1635745

CMPS 142 - Spring 2018

Homework 1 - Problem 1

1. A couple has two children and the older child is a boy. If the probabilities of having a boy or a girl are both $1/2$, what is the probability that the couple has two boys?

The possible combinations of (older, younger) are: $\{(b, g), (b, b), (g, g), (g, b)\}$. Since we know the older one is a boy, then we have $\{(b, b), (b, g)\}$. The probability of (b, b) is $\frac{1}{2}$.

2. A couple has two children, of which at least one is a boy. If the probabilities of having a boy or a girl are both $1/2$, what is the probability that the couple has two boys? Hint: The answer to this question is not the same as the answer to the previous one.

The possible combinations of (older, younger) are: $\{(b, g), (b, b), (g, g), (g, b)\}$. We know one of them is a boy, so we still have options $\{(b, g), (b, b), (g, b)\}$. The probability of (b, b) is $\frac{1}{3}$.